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THE JOURNAL OF PHILOSOPHY
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THE KNOWLEDGE OF PAST EVENTS[1]

THE problem of the relation between knowledge and its object is nowhere more sharply defined than in the knowledge of time. It is clear that there are many known entities which contain temporal properties different from those of the knowledge itself. Thus I may know the events of yesterday, and yet know them to-day. In this case we find two events, which can not be wholly identified because their times are different, but which are nevertheless related as object and state of knowledge. The knowledge of future events presents a similar situation. Furthermore, in knowledge both of the past and of the future, it is possible for the object and the state of knowledge to differ in duration. Thus the dying man is said to review in an instant the events of a lifetime. In the case of knowledge of the present, we meet with the familiar difficulty concerning the knowledge of succession. It appears that while the object known contains the temporal relations *before* and *after*, the knowledge itself contains only the simple temporal property of occurring *now*. Finally, there

[1] I have thought it best in the present discussion to avoid the detailed consideration of classical discussions of this general problem, in the hope that I may thereby make my analysis more simple and direct. Among contemporary discussions of this problem I find myself most in sympathy with that of Professor Fullerton, contained in Chapter XIII. of his 'System of Metaphysics.' But his treatment of the matter is, after all, disappointing, because, in spite of a certain flourish of radicalism, he is too cautious and guarded to be clear-cut. I find his criticisms of traditional views on the whole effective, but his own independent doctrine obscure through his willingness to stake so much upon such distinctions as 'real' and 'apparent,' and 'thought' and 'intuition.' Certain crucial statements, furthermore, I find quite unintelligible. He says, for example, that 'the past and the future are non-existent, *from the point of view of the present*' (pp. 206, 207). If he had said that the past and future are non-existent *at* the present, I should have understood him. But it seems clear to me that *from the point of view of the present* we know past events to be existent in the past, and future events in the future. With the view set forth by Professor Taylor in Book III., Chapter IV., of his 'Elements of Metaphysics' I find myself almost wholly in disagreement. It consists essentially in what appears to me to be an obscure and inaccurate distinction between perceptual and conceptual time.

are many known entities which are explicitly non-temporal, but which are nevertheless known at specific times. Here, as above, knowledge and its object appear to be different, if not incompatible; while, on the other hand, it seems necessary to affirm that if knowledge be knowledge at all it must contain the truth concerning its object. In the present paper, and in the further studies which are to follow, I shall attempt an empirical examination of the cases of knowledge which I have just enumerated, all of them having a special reference to time. I shall assume that writer and reader may view them together and hope to arrive at a mutually intelligible description of them. To this end it is necessary, in the first place, to examine experience with as little preconception and with as much patience and diligence as possible; and, in the second place, to use whatever terms may be employed for description in an entirely unambiguous sense. To realize the second of these aims it will be necessary to introduce new terms, whose connotation is given them by the distinctions explicitly made in the course of the discussion. It is impossible to avoid more fundamental epistemological and metaphysical problems, and there are two such problems to which, indirectly, I shall give a definite solution. In the first place, I hold it to be true that knowledge *contains* the things known, that all knowledge is in the last resort *direct apprehension.* In the second place, I hold that it is impossible to understand temporal experience without supposing time to be an order intelligible *in abstracto,* possessing certain properties in its own right, and supplying these properties to the complex entities which we call events. So far as I know, Mr. Russell's argument against the derivation of time from non-temporal quantities or their relations is irrefutable. It will clear the air if I quote from this writer's summary of the theory which I here hold in common with him:

"In the absolute theory (of space and time) we have two classes of entities, (1) those which *are* positions, (2) those which *have* positions. Any two terms of the first class have an asymmetrical transitive relation:[2] in the present case, either *before* or *after.* The terms which have positions are terms each of which has, to one or more of the terms which are positions, a certain specific relation, which may be expressed by saying that the new terms are *at* the positions, or that they occupy the positions. By compounding a term which has one or more positions with one of the positions which it has, we obtain

[2] I shall employ Mr. Russell's classification of relations, as follows: "Relations such that *xRy* always implies *yRx* are called *symmetrical;* relations such that *xRy, yRz* together always imply *xRz* are called *transitive.* Relations which do not possess the first property I shall call *not symmetrical;* relations which do possess the opposite property, *i. e.,* for which *xRy* always excludes *yRx,* I shall call *asymmetrical.*" ('Principles of Mathematics,' p. 218.)

a complex term, *i. e.*, the said term at the position; this new complex term contains the position as a constituent, but contains only one such position. In the case of time two such terms which contain the same moment as constituent are said to be simultaneous; two which contain different moments are *said* to be the one before and the one after, by correlation with the moments they contain, but this new relation is complex, containing as a constituent the before and after of moments. We may call *qualities* the terms which have positions in time; thus a quality may be at many moments, or even at all moments. The compound formed of a quality at a time may be called an *event;* thus an event is logically incapable of recurrence.''[3]

I shall not only assume the truth of this theory, but shall use various terms such as *event, quality, position,* etc., in the sense which Mr. Russell here gives to them. At the same time I am not primarily concerned either with this theory, or with the epistemological theory stated above. I do not aim to prove them, but only to give them such verification as follows from their successful application in the case of certain difficulties connected with the temporal reference of knowledge.

In the present paper, while I shall bring forward terms and conceptions which I believe to be more generally applicable, I shall confine myself to a study of *the knowledge of past events.* There is certainly no more familiar experience. Past events are constantly referred to in discourse and action, and are as surely common objects as the coin which is passed from hand to hand. To relegate the object to any limbo of unreality or relativity would be as prejudicial to the most elementary beliefs in the one case as in the other. It is entirely clear, furthermore, that the unique temporal value assigned to remembered events is essential to them. The past time at which the event occurred and the specific quality of the event together constitute the entity referred to. On the other hand it is clear that we in some sense remember or refer to this event, *now.* There appears to be a difficulty, then, in that an event, containing one particular time as an essential and inalienable part of itself, seems also to occur at another and contradictory time.

There is one ambiguity which quite unnecessarily obscures this situation. *Does* the past event exist? In the case of such a question a palpable verbal ambiguity attaches to the use of the grammatical present tense. The present tense has two quite different uses: (1) affirmation or judgment in general; (2) affirmation of present existence or occurrence. This ambiguity can readily be obviated by a more careful use of terms. In exact thinking like that of mathe-

[3] B. Russell, 'Is Position in Time and Space Absolute or Relative?' *Mind,* N. S., Vol. X., p. 294.

matics, this is provided for by the use of such symbols as: $=, >, <$. In the case of such propositions as $4 > 3$, there is no reference whatever to time. It follows that these propositions are as true at one time as at another. But this holds equally well of propositions which affirm or deny temporal existence. Such propositions may be true *of* one and only one time, but when so formulated they are true *at* all times. Propositions concerning temporal existence may thus assume either the one or the other of two forms: a form expressing the timeless truth of the proposition, or a form expressing the temporal relation between the time of the existence and the time of knowledge. Let us suppose At^5 to represent an event having the quality A, and occurring at the time t^5.[4] This may be expressed in propositions of the second, or temporal type, as follows: at t^3 (earlier than t^5), *A will occur at* t^5; at t^5, *A is occurring;* at t^7 (later than t^5), *A occurred at* t^5. The same fact may be expressed in a proposition of the second type as follows: *the time of* At^5 *is* t^5, or At^5 *exists;* where the present tense of the verb is used to express not a temporal relation but a simple affirmation, which so far as its truth is concerned may be made as well one time as another. There is then no logical difficulty in supposing that a past event, including its time, is true now. But the possibility of its being *known* now is an entirely different matter. If it is to be known now, and known directly, it would seem necessary to suppose that it exists now. Present knowledge of a past event seems, in other words, to involve two contradictory temporal judgments of the type just defined: *the event existed then, the event exists now.*

It is clear that we must discover some sense in which an event which takes place at one time may without prejudice to its proper historical position belong to a manifold called a state of knowledge which as a whole is dated at another time. A pertinent suggestion is conveyed by certain terms employed by common sense. Memory is commonly termed *retrospect, i. e.,* looking backward, and knowledge of the future *prospect, i. e.,* looking forward. Common sense assumes, furthermore, that without forfeiting its identity an event may be known, first, prospectively; then at the time of its occurrence; and finally, retrospectively. In order to understand that this is possible, it is necessary to observe the general and important fact that every individual complex entity may acquire a variety of aspects or modalities through which it may be counted an indefinitely great number of times. In the first place, every complex entity possesses the

[4] t^1, t^2, etc., here symbolize different periods of time, *i. e.,* stretches of time having a particular position, and which for the sake of simplicity we may suppose to have no instants in common.

potentiality of what we may call *direction-aspects.*[5] This follows from the general fact that the constituent terms of a complex entity must be related, and from the further fact that every relation contains a difference of direction or sense. Either of the terms x and y, which we may suppose to stand in the symmetrical relation R, may be regarded as so related to the other; so that we have the two propositions, xRy and yRx. In the first case, R refers to x and relates to y; while in the second case R refers to y and relates to x. Or, to employ Mr. Russell's terminology, in the first proposition x is the *referent* and y the *relatum;* while in the second, y is the referent and x the relatum.[6] If we suppose our entity to be a manifold without order, as in the case of a pair of spatial objects in contact, we can distinguish *a is in contact with b* from *b is in contact with a.* Although the relations are in this case the same, the two directions are nevertheless distinguishable and essential to the whole entity. If, on the other hand, the complex entity is an order, the relations are asymmetrical, and it must be possible to distinguish two different relations, a generating relation R and a converse relation $\breve{R}$.[7] In the case of the alphabet it is equally true that B follows A, and that A precedes B. In short, every complex entity contains direction, sense or conversity in the relations which connect its constituent parts. But it must now be noted that while such an entity contains both directions of every relation that enters into it, it does so quite impartially, and provides no ground for the isolation of either. When owing to some external determination such isolation does take place, as, *e. g.,* in the judgment, *B follows A, C follows B,* etc., there occurs what I have called a *direction-aspect.* Let us now return to the case of the event, or complex entity including particular instants of time. Time is an order, and is generated, therefore, by an asymmetrical relation. It follows that the instants in any stretch of time stand in the forward or generating relation *later than,* and also in the converse relation *earlier than.* If it be true that t^5 is later than t^1, it is no less true that t^1 is earlier than t^5. Through the modality of direction thus provided for, any event may, so far as it is itself concerned, be known either forward, in the order of occurrence, or backward, in the order of retrospect.

But, in the second place, every complex entity contains parts, and these in their severalty and fragmentariness constitute what we shall call *part-aspects* of that entity. Every whole includes all of its

[5] I use the term 'direction' to apply to all relations, whether spatial or not. I should have preferred the more exact term 'sense,' had it not been for the danger of confusing it with 'sensation.'

[6] The reader who wishes to look up this point may consult Russell's 'Principles of Mathematics,' p. 95.

[7] See p. 618, note 2. Cf. also Russell's 'Principles of Mathematics,' p. 94.

parts; while it permits, without itself determining, the isolation of one of them, or the segregation of a group of them. Thus *ABC* and *ADG* as parts of the alphabet are contained therein. But that *ABC* and *ADG* should sometime, somewhere, somehow, stand alone, is accidental to, while entirely consistent with, the nature of the alphabet as a whole. Similarly, any continuous period, or any scattering fragments of the temporal process, may be abstracted and isolated. The event At^1, or the pair of propositions, At^1 *is earlier than* Bt^5 and Bt^5 *is later than* At^1, would constitute part-aspects of temporal existence. It follows that the single proposition, At^1 *is earlier than* Bt^5, is a complex aspect, since it is an isolated part of the order of temporal existence taken in only one of the two directions of the temporal relation.

But there is a third type of aspect. It is clear that any entity may stand in an external relation with any other entity, and that such a relation can never be deduced from either of the terms so related. Thus the color blue may be externally related to the alphabet, or to the idea of goodness, while remaining both indifferent and uncompromised. Similarly the event At^1 may be externally related to any non-temporal entity such as M. (At^1) (M), where the terms in parentheses are so related, would represent what we shall call a *context-aspect* of At^1. It follows that when a part of any entity stands in an external relation to the whole or a part of another entity, there results a complex part and context aspect.

Before proceeding to employ these aspects in a description of knowledge of the past, it is important to observe once more that they do not in any way contradict the event, or destroy its identity, since the event clearly permits them. Nor are they duplications of the entity since they are distinguished as, and must therefore be judged to *be*, senses, contexts or parts of the one identical entity. The aspect is identical with its entity so far as it includes that entity or anything essential to it. The entity, on the other hand, includes every property of its aspect save its incompleteness and its external context.

Let us now return to our problem. So far as I can ascertain from an empirical examination of the matter, it is always possible to find in any typical case of knowledge of the past three terms and two relations, as follows: (1) an event referred to, containing its time of occurrence; (2) the present time, as part of some present event, such as a bodily state; (3) some further context; (4) the external relation, *known with*, subsisting transitively between the above terms in the above order; (5) the relation, *earlier than*, referring to (1) and relating to (2). Two points in this analysis seem to call for special comment. First, must such a state of knowledge

necessarily include the present time? The answer to this question lies in the term *past,* which, if it has any meaning at all, must signify the converse or negative temporal relation. However inaccurately the event may be located *in* the past, if it is to be regarded as past at all at least enough terms must be known to establish this specific relation. Now it is clear that the two terms essential to this relation are the time of the event known as past, and *the present time to which it stands in the relation of being past;* while any or all of the intermediate terms may be lacking. The past event may, of course, be known to be such only through being earlier than some other time than the present; but only when this other time is itself known in relation to the present. Knowledge of the past as past, however vaguely or indirectly it may be located, must include the present. Secondly, doubt may be raised as to the virtue of the third constituent enumerated above. It is mainly through this further context that it is possible to distinguish one individual's knowledge from another's, when the times present and the times past are the same. It is not necessary to suppose that any given state of knowledge is peculiar to one individual, for it may be a common experience in which two or more selves intersect. In such a case the identification of the individual knower is possible only through a relation between the given state and further outlying context. As a matter of fact, however, a total state of knowledge is commonly, if not always, internally unique. And this is due in part to the specific fragmentariness with which the object is known, but in larger part to the immediate presence of nuclear or ideal elements of some individual self. For this reason we have included among the constituents of a typical case both a part of the past event and also a further context having no special temporal connotation, but standing to the residue in the relation *known with.* We may, then, briefly formulate knowledge of a past event as follows: (at^{-5}) (bt^{0}) (m). The terms inclosed within parentheses stand in the relation *known with,* the direction of the relation being indicated by their order. Thus the relation refers to at^{-5} and relates to bt^{0} and m; or refers to at^{-5} and bt^{0}, and relates to m. t^{0} symbolizes a time known as present, and t^{-5} a time related to it as past. a and b symbolize parts of A and B, which are the qualities of events At^{-5} and Bt^{0}. Finally, m signifies a context made up of elements peculiar to the experience of the individual M.

We are now prepared to face our main problem. How is a manifold thus constituted to be dated? What is the propriety of reading the above formula as, *the knowledge of* At^{-5} at t^{0}? In the first place it is entirely clear that At^{-5} can not be said to occur at t^{0}, because of the fact that it contains t^{-5}. The fundamental principles of order,

to which time must be held to conform, assign to each term an unambiguous position.[8] t^{-5}, if indeed it can be said to occur at all, can occur only at t^{-5}, and t^0 at t^0. It must be held, then, that an event can occur at the time when it is known, only in case it is known when it occurs, *i. e.*, when it is a present event. Supposing t^0 to represent a time known as present, then Xt^0 represents the only class of events that can occur when they are known.[9] A past event, therefore, must never be said to occur at the present when it is known. *Distributively* the events contained within any state of knowledge must be referred to their own proper times. On the other hand, unless our empirical analysis is at fault, this manifold *as a whole* is, in all judgments concerning the time of a knowing of the past, actually correlated with t^0. The reason for this will appear, I believe, if we recall the peculiar part which is played by t^0. t^0, or bt^0, it will be remembered, is the term *to which* at^{-5} as a past event *is related.* While at^{-5} is the *topic* of knowledge, bt^0, or $(bt^0)(m)$, is the specific qualification to which at^{-5} is here submitted. In other words, $(at^{-5})(bt^0)(m)$ may be said to be the $(bt^0)(m)$ aspect of at^{-5}. *As aspect,* then, this manifold should be classified through $(bt^0)(m)$, rather than through at^{-5}, and thus temporally correlated through t^0, the constituent time of $(bt^0)(m)$. We have here to do with a familiar, but very obscure conception, that of *point of view.* This phrase properly signifies nothing more nor less than a relatum together with one or more referents, or a term with one or more other terms *related to* it. In the case where there are more referents than one, the relations are convergent in sense. Thus we may suppose *a, b, c* and *d* to be related to *m*; the propositions, *aRm, bRm,* etc., then converge to *m,* which may be said to be the center of the system. Now it seems to be generally agreed that a point of view is to be classified as such through its center, and specified through its perimeter. Thus the system above would be designated as *point of view m, respecting a, b, c* and *d.* Or, any such system may be formulated as a set of terms having a common relatum; as *a, b, c* and *d from the point of view m.* Let us now construe knowledge of the past as a special case of point of view. It is then either present knowledge, modified through being *of* a past event, or a past event modified through being known now. In other words, the manifold $(at^{-5})\ (bt^0)\ (m)$ is both the event at^{-5} from the point of view $(bt^0)\ (m)$, and the point of view $(bt^0)\ (m)$ respecting at^{-5}. As a case of knowledge, or point of view, then $(at^{-5})\ (bt^0)\ (m)$ is to be classified through $(bt^0)(m)$ and its constituent time t^0; while it is to be further specified through at^{-5}.

[8] Cf. B. Russell, 'On the Notion of Order,' *Mind,* N. S., Vol. X, p. 33.

[9] The special question of present knowledge will be considered in a later paper.

If this analysis is accepted, then $(at^{-5})(bt^0)(m)$ must through t^0 also find its place in the temporal succession of the individual's inner life. Without claiming that every phase of an individual experience can be internally dated, we may, I believe, safely affirm that its course as a whole is coordinated with the history of nature and society through the times known as present. Thus if I had experience of the year 1894, and if there is internal proof of it, I must have experienced as *now* the time which in the true temporal order is designated as 1894. Indeed, it is impossible that the terms *present time* and *now* should mean anything else.[10] Every state of individual M which includes its own time will then have the form $(bt^0)(m)$, and every case of knowledge of the past can be assigned a place in the order of these states only through containing such a term. To conclude, the formula $(at^{-5})(bt^0)(m)$ may be read as an aspect of At^{-5}, namely, At^{-5} more or less completely known at t^0, by M; or as an instance of M's knowledge, namely, M's knowledge at a present time of the event At^{-5}.

There is one further question which, though very general in its bearings, can not well be avoided here. It is commonly said that all knowledge of the past (except, perhaps, of the immediate past) is conceptual rather than perceptual. I am not at all concerned here to distinguish these much-abused terms, but only to object to a supposition which commonly accompanies this application of them. It is commonly supposed that the past, because it is known conceptually, is known indirectly, or by substitution. Now from what has been said above it follows that in a certain sense a past event is represented in present knowledge of it, since it is not the absolute event, but an aspect of it, which appears therein. But this does not mean, and should never be taken to mean, that anything other than the event is substituted for it. That which represents the event *is* the event, wholly or in part, and together with something else. Since the term representation seems to imply substitution, it is better to avoid it altogether, and to say simply that the event or part of it is a constituent of the manifold of cognition.[11] This enables us properly to understand substitution when it is actually made for

[10] That the external dating which may be obtained through a study of the physiological conditions of individual experience must correspond exactly with this internal dating, is, of course, assumed in the very method of study employed in determining these conditions.

[11] There is a somewhat more difficult case which we must reserve for subsequent consideration. We may suppose an event which actually occurs at t^{-5} to be known at t^0, but only as respects its quality. Thus it may happen that of event At^{-5} only A is known at t^0. But since At^{-5} as known at t^0, *i. e.*, (a) (bt^0), contains no temporal location except the present time of the knowledge, it is more convenient to regard this as a special case of temporal knowledge of non-temporal entities; and as such it constitutes a separate problem.

purposes of formulation, calculation or record. To my mind it is an incontestable truth that such substitution is possible only when based upon and attested by direct knowledge. Thus I may in a book employ the sentence, 'Columbus discovered America,' in place of the event itself; and this printed symbol as a visible entity may occupy a time quite other than that of the event for which it is substituted. But there would be neither sense nor use in this substitution did I not distinguish the symbol and what I mean by it as two different entities. The symbolic representation of the past involves, then, a knowledge of the past which is represented, and can not itself afford us any solution of the problem as to how in the last resort that past itself is known. To this question I can see but one answer, to the effect that it is known directly through itself constituting a part of the manifold which we call knowledge. Let me add only that while knowledge of the past of the type which we have been considering obviously exceeds sensation, the analysis and description of auxiliary factors of knowledge such as *conception, memory, imagination,* etc., lie outside the scope of the present inquiry. For present purposes we may regard them all as embraced within *cognitive experience.*

RALPH BARTON PERRY.

HARVARD UNIVERSITY.

SHOULD WE STILL RETAIN THE EXPRESSION 'UNCONSCIOUS CEREBRATION' TO DESIGNATE CERTAIN PROCESSES CONNECTED WITH MENTAL LIFE?

THE expression 'unconscious cerebration' is one rarely seen in contemporary literature. It is hardly to be found in the indices to treatises on psychology, and even Baldwin's 'Dictionary' fails to assign it a separate caption. Is it that the expression is no longer needed? Are the facts for which the term was originally devised now met by a more adequate and up-to-date terminology? Or may the expression still be rescued from a threatened annihilation and be made to cover a situation for which no more appropriate term exists?

There can be no doubt that the decline in popularity of explanations in terms of unconscious cerebration is due in great measure to the wide-spread use of the 'subconscious' as an explanatory principle. This 'subconscious,' with its included meanings of 'split-off' or of 'subliminal' consciousness, has seemed to many to do a masterly service in clearing up the facts which Carpenter and his followers attributed to unconscious cerebration. This, I take it, is the chief

reason why the latter expression has been pushed to the wall. Added to this, however, is probably a second reason, namely, that the connotation given to the term by its leading advocates was such as to make it cover a rather miscellaneous assortment of facts found later to be by no means reducible to a uniform principle.

Those of us who find ourselves unable to accept that doctrine of subconsciousness which makes of it a detached, split-off companion of our normal consciousness are the ones, naturally, who feel an interest in discussing the status of unconscious cerebration. To those who are firmly intrenched in their adherence to the subliminal the present discussion will appear to have slight significance. To the rest of us, however, it seems to me that such a discussion should be most opportune, in view particularly of the fact that that phase of the subconscious which we accept as legitimate has recently been exploited with such clearness and masterly thoroughness in Jastrow's 'The Subconscious.' If this 'legitimate' subconsciousness is able to displace satisfactorily the somewhat clumsy term 'unconscious cerebration,' we wish to have the fact clearly recognized. While if, on the other hand, 'unconscious cerebration' may refer to facts and processes not included under subconscious phenomena, that fact also should be made plain.

I

Perhaps we may best approach our special topic by attempting to mark off certain diversities of cerebration from the point of view of the consciousness which runs parallel to them. Thus we may get the proper contrasts to illuminate our particular problem. Letting the term 'cerebration' stand for those cerebral processes which directly subserve our present or our future consciousness, we may distinguish the following varieties of it.

1. *Fully Conscious Cerebration.* a. *Prescribed Cerebration.*— Here the conscious processes are such as are awaited, or expected. We deliberately set out to get something into consciousness. We forecast the coming material in so far as we already consciously possess those processes which are associatively effective in arousing it. The results of such cerebration may be of two sorts: (1) The consciousness may be *definite* and *satisfactory.* Thus if we deliberately start to recall a line of poetry, we experience the unrolling of the line in ready and perfect fashion, and we find the event satisfactory if subsequently we chance to reflect upon it. (2) The consciousness may be *relatively indefinite and more or less satisfactory.* This is illustrated by what happens when, for example, we search for fine phrases in which to clothe our thoughts, or for characterizations of persons or situations. Here, in the nature of the case, the cerebration is somewhat loosely prescribed, and what arrives in con-

sciousness may be warmly approved or accepted only as a temporary makeshift for something conceivably better.

b. *Unsolicited Cerebration.*—This is cerebration the conscious side of which is in no sense forecast. The situation is wholly non-voluntary. Processes arrive, but they were not summoned. Under this head should be placed all that array of processes which we commonly describe by saying that they 'simply occurred to us.' Here again the results for consciousness may be of two sorts. (1) The conscious processes may be *inconsequent,* perhaps *incoherent.* Such, for the most part, are dreams and hypnagogic images. Such also are many trains of waking fancy. (2) Consciousness may be *entirely coherent, effective and to the point.* Whatever arrives in the field of consciousness is unbidden, but when scrutinized it is given the mark of approval. The arrivals may be strangers representing all grades of distinction, or they may be old friends returning to surprise us. Such arrivals are the spontaneously created poems, the apt phrases, the solutions and the like, whether coming in the waking or in the dreaming state. Such in large part are musical improvisations and inspirational speakings and writings. Such are the coherent trains of revery or of delirium, which bring our past experiences again before us.

2. *Vaguely Conscious Cerebration.*—The marginal consciousness is the accompaniment of this. Here, therefore, should be placed whatever belongs to our subconscious experience.

II

Our problem may now be readily stated. It is simply this: Are there any varieties of cerebration other than those indicated above? Is there, that is, any cerebration which, while directly significant for consciousness, is not at the moment paralleled by a concomitant consciousness? If such cerebration exists, it should have the right to be called unconscious. Now it is not my purpose to undertake any detailed account of how the process of cerebration is to be figured. Such an attempt would be premature and without special point in this connection. But taking unconscious cerebration to mean *cerebration significant for later consciousness but unaccompanied by present consciousness,* must we not admit that just such cerebral activities must be presupposed for the understanding of some of the obvious facts of mental life? Such facts, testified to with notorious universality, have been appealed to unanimously by the advocates of unconscious cerebration, and they need only be recalled here to receive at once the admission of their indisputable character. Our experience confirms them daily. We all know that a momentarily forgotten word does often appear spontaneously in consciousness.

We know that there is something indisputable about the facts of so-called 'mental incubation.' We know what a day's outing or an evening's relaxation will do for our mental productivity. We do often find that what were baffling problems and annoying perplexities when we dropped them from mind are much straightened out and set in order when next these same matters come to consciousness. And we know that in unusual cases automatic writing and similar movements occur in (seemingly) entire unconsciousness both of their initiation and of their execution. These, I believe, are the types of fact that need the hypothesis of unconscious cerebration for their explanation.[1]

Now, of course, many of these phenomena just indicated are conditioned primarily by neural recuperations, by the increase, that is, of those cerebral tensions, due to nutritive changes, which are the prerequisites of all consciousness. And the establishment of such tensions is assuredly an unconscious process. But the term 'unconscious cerebration' should be applied, it seems to me, not to mere accumulations of cerebral energy due to nutritive processes, but rather to cerebral *activities* of one sort and another. If, in default of actual knowledge on the subject, we try to hint at what such activities may be, we may not be far wrong in speaking of them—illustratively at least—as redistributions of cerebral tensions, or as the settling down of certain patterns of connections which later form the substrata of novel forms of consciousness. Or, otherwise expressed, we may speak of the disappearance or of the rearrangement of inhibitions, consequent presumably upon the makings and breakings of neurone contacts. It is just this sort of cerebral change that seems to take place in the interval between the vain search for a word and its subsequent sauntering into consciousness. It is just this that seems to have taken place when the visions of the early morning are found clearer than those of the night before, or when, in general, a genuine period of incubation has been lived through. Fresh and abundant accumulations of cerebral energy are, to be sure, essential for the best results along the lines mentioned, but mere anabolic processes as such are not in any way to be regarded as processes of cerebration. Unconscious cerebration in its true sense is the silent adjusting of the cerebral machinery for the subsequent turning out of a conscious product. And whenever we are warranted in believing that such silent adjustments have taken place, there we are justified in appealing to unconscious cerebration.

[1] For a further type of fact, occurring less frequently than those mentioned, cf. Pierce, 'An Experience and an Inquiry,' this JOURNAL, Vol. I., 1904, p. 400.

III

The formulation just given is simple enough in principle, however difficult its application may be in a concrete case. And it enables us at once to exclude certain phenomena which the advocates of unconscious cerebration have commonly appealed to. In the first place we must take care not to label as unconscious that cerebration which is presumably accompanied by low-grade, marginal consciousness. Such cerebration is probably, and many times certainly, the accompaniment of those automatic activities commonly represented by walking and piano-playing. Carpenter, who together with his immediate followers appealed to these mechanical activities of the body as evidence for his theory, was not supplied with the present-day analyses which would have enabled him to separate clearly the unconscious from the subconscious. In the second place we must carefully exclude whatever may be attributed to unconscious cerebration through the uncritical use of the word 'unconscious' in its secondary and popular meaning of 'involuntary' or 'unintentional.' It is through this mistaken use of the term that the followers of Carpenter, less critical in this respect than he, have appealed to the phenomena of dreams as furnishing contributory evidence for the reality of unconscious cerebration.[2] But the cerebration of our dreams is no more unconscious, in the true meaning of that word, than the cerebration of waking life. It is rather to be classed with the variety described above as 'unsolicited.' Nor are hallucinatory voices, as Miss Cobbe would have it, cases of unconscious cerebration. Whatever cerebration is then taking place has a quite vivid conscious concomitant.

In a word, the meaning that should be given to 'unconscious,' in this as in all connections, discriminates it effectually from the 'subconscious' on the one hand and from the 'unintentional' on the other. And whenever we have evidence that cerebral activities have been going on absolutely unaccompanied by corresponding consciousness, though essential for the conscious processes that are to emerge later, there we may say that unconscious cerebration has been taking place. And as a designation for such activities and as an explanation for indubitable facts of experience not otherwise to be comprehended, the expression 'unconscious cerebration' seems to perform a service valuable enough to warrant its resuscitation and to insure its continued and dignified survival.

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[2] Cf. Cobbe, *Macmillan's Magazine*, XXIII., 1870, pp. 24 and 512; Childs, *American Journal of Psychology*, V., 1892, p. 249; Dugas, *Revue Philosophique*, XLIII., 1897, p. 412.

REVIEWS AND ABSTRACTS OF LITERATURE

Studies in Philosophy and Psychology. A Commemorative Volume by Former Students of Charles Edward Garman. Boston and New York: Houghton, Mifflin & Co. 1906. Pp. xxiv + 411.

Studies in Philosophy

"By their fruits ye shall know them." This volume is the second recent and notable commemorative presentation of 'fruits' by former students to American teachers of philosophy. Professor Garman, like Professor Howison, belongs to that select circle of philosophers who take the teaching of philosophy seriously and who succeed, therefore, in getting students to take philosophy seriously. If, now and then, Professor Garman has been visited with regret that since he found 'that his students would be satisfied with nothing less' than his best and his entire energy in teaching, he dared not 'let down his course and devote himself to publishing,' he must find much in this volume to vindicate his course.

Professor Garman's letter on the purpose and method of teaching philosophy, which forms the excellent preface of the volume, was originally published in the *American Journal of Psychology,* in 1898, and is, therefore, familiar to many. Of this letter it is necessary to say only that it is not difficult for the reader to understand how Professor Garman has succeeded so well in inoculating his students with philosophy and in convincing them of its essentially *vital* character—that it is something more than 'a game.'

The first paper, by Professor Tufts, 'On Moral Evolution,' is so packed with content that any statement of it in a paragraph or two is bound to be very schematic. Indeed, it is difficult to imagine how the paper from its own inner pressure can escape expansion into a volume. The paper is a reconstructive statement of the factors and processes of moral evolution in the light of recent contributions of the genetic psychology of the individual on the one hand and of social psychology on the other.

In the developed moral experience are found as content: (*a*) 'the development and idealization of powers giving advance in knowledge, in art and in consciousness of rights'; (*b*) regard for others under its various aspects of justice, sympathy and benevolence. On the side of method —of the 'how'—there are: (*a*) the problem of the construction of a standard; (*b*) the attainment of unity of motive—of whole-hearted interest; and (*c*) the organization of impulse and ideas into responsible character. The genetic elements are, on the side of the individual, the primitive biological instincts and emotions; on the social side, the various activities of group life.

Part II. of the paper contains a critical discussion of the causal agencies of moral evolution. After pointing out the contributions and the limitations of the 'association' theory, the 'sympathy' theory and Professor Baldwin's 'imitation' or 'polar-self' theory as accounts of

how the individual assimilates the culture and morality of society, Professor Tufts shows that 'we need to add social organization as directing the discharge and organization of instincts and impulses.' From the standpoint of individual achievement the chief factors are, objectively, *opposition* in the physical and social environment and, subjectively, *effort*.

Part III. brings together the 'what' and the 'how' of the preceding analysis in the unity of 'The Process of Moral Evolution.' The general law of development is: (*a*) formally, the standard presented, at first, not by itself but in persons, comes gradually to explicit recognition; (*b*) on the side of content, definite and free conceptions of art and science, of self and others, of rights and duties, emerge gradually out of the routine, habitual activities of group life. The real *point d' appui* of this development is found in the fact that organized impulses, habits and customs are constantly developing new relationships of conflict and reinforcement. The account of the stages through which this development passes—especially the passage from the standard of honor to that of right, is illuminating. The illustrative material is abundant and apt.

'The Expansion of Europe in its Influence upon Population' is the caption of Professor Wilcox's paper. Taking his departure from Professor Seeley's lectures upon 'The Expansion of England,' Professor Wilcox asks whether the center of modern history is not to be found in the efforts at expansion, not of England, but of Europe? After the discovery of America and the ocean route to India, did not Europe encounter less resistance in foreign lands than at home? And were not its efforts quite as largely economic as political or military? Did it not strive more or less blindly for the advantage and the increase of the people as much as for the glory and prestige of the state? "To a non-European student of population these questions seem answerable in the affirmative."

Professor Wilcox then takes up the statistics of population and shows that, with a few minor exceptions, the native stocks reached by European powers have increased in numbers much more rapidly than those out of range of European influence. And this increase is not due to any increase in the birth-rate, but to decrease in the death-rate. Mere increase in quantity of human life, however, is not necessarily a good. But this increase in quantity through a decrease of the death-rate due to the development of science, shows that the expansion of Europe is an expansion of the higher qualities of life, and is a vindication of the agricultural, industrial and political type of civilization.

Mr. Woods contributes a suggestive paper on 'Democracy—a New Unfolding of Human Power.' The paper thinks that the past and perhaps much of the current conception of democracy, with its simple formula of a minimum of administrative machinery and equality before the law, is too negative and formal. Such a formula answers very well for revolutionary periods, but is entirely inadequate for the positive and reconstructive needs of the present. The *laissez-faire*, individualistic conception of government in our present industrial and commercial system defeats its own aim. For combinations of individuals engaged in industry take up functions which this negative conception of govern-

ment ignores, and the result is an oligarchy sailing under the colors of democracy. Democracy, therefore, must become positive and constructive to save itself. Its administrations must be *by* the whole people and for the whole people—not by private individuals for private individuals.

Yet Mr. Woods says that his essay is by no means exclusively directed toward the extension of a governmental régime to cover all interests of the economic and social world. For the principles of democracy may in many cases be applied by a voluntary community effort without governmental interference. Just how this is to be done without some kind of organization that would in so far very much resemble governmental machinery is not quite clear from the paper. Mr. Woods says through the great principle of 'association,' and argues that as 'the people by cooperation are carrying on the enormous business of government, why not extend this method further into the fields of industry and culture'? But some may think that government is not a special 'field' of activity coordinate with 'culture and industry.' They may insist that government is simply the *method* of applying certain principles in the 'fields' of industry and culture.

Mr. Woods's treatment of the ancient bugaboo of lack of incentive under a cooperative system, though making no pretense to novelty, is well put and well illustrated.

The next paper is 'An Analysis of the Moral Judgment,' by Professor Sharp. The paper aims to exhibit the basis and nature of moral approbation and disapprobation, of the adjectives 'right' and 'wrong' and of the experience of obligation. The inquiry is to be conducted from the standpoint of moral judgments as employed in every-day life.

The differentia of moral approbation is found not in its emotional content, but in its object, which is always a *purpose*. This distinguishes it from esthetic approval or taste, whose objects are given results, and from scientific or intellectual approval, which is directed upon means to ends. Moral approval must not be confused with habit-custom. For the moral judgment is always *critical*—a judgment of a purpose in relation to other purposes. This makes it always a systematic judgment.

The ground and standard of moral approval the paper finds in the right-wing interpretation of Kant's standard of universality. The moral judgment approves that purpose 'which the person judging approves of every one aiming at under the same conditions' (p. 114). Here some one may ask, as has been asked of Kant: But what is the basis of this universal justification itself?

Some may find the distinction between the content of moral approbation and 'right' in Part II. a little difficult to follow. 'Right' is said to be 'at its lowest,' moral approbation 'purged of all inconsistencies and reduced to a harmonious system' (p. 126). But in the previous analysis approval is not moral except it is critical, and critical approbation surely could not occur so long as consciousness of inconsistencies and lack of harmony remains. Right is the harmonized approbation of my deeper as opposed to the approvals of my surface self (p. 128). But how are we to distinguish the harmony of the deeper self from that of

the surface self? If the harmony of the surface self is felt as a 'surface' harmony, if a deeper self is recognized at the time, there could be no surface harmony.

Professor Sharp's criticism of attempts to distinguish and separate motive and intention and formal and material right and wrong, and his analysis of obligation as the tension between the new ideal and old habits undergoing reconstruction, are well taken.

Professor Woodbridge's paper on 'The Problem of Consciousness' is very reconstructive and thought-provoking. The initial thesis of the paper is that the characteristic positions and problems of modern idealism which are now undergoing vigorous criticism and reconstruction have been determined by the conception of consciousness as worked out by Descartes, Locke and Kant, namely, of consciousness 'as an end term of a relation, the other term of which might be an external world, another mind, the Divine Being or some unknown source of excitation.'

The strained and artificial character in which Professor Woodbridge believes idealism has always appeared to the plain man and the scientist, is due to just this mistaking for an end term what is really a relation. This real but unrecognized relational character of consciousness accounts for the fact that in attempting to play the rôle of an end term it has always tended to reach out and appropriate the other term 'until, as in the post-Kantian philosophy, the source of stimulation was brought within the mind itself and assigned to the mind's essential instability.' The logical outcome of this situation is that no meaning is left in either terms or relation, and experience is reduced to simple given immediacy. In attempting to avoid this result and in restoring, in actual operations, the relational function to consciousness while yet regarding it theoretically as an end term, arise the antinomies of idealism which current criticism is developing.

In the positive part of the paper Professor Woodbridge starts with an analysis of 'the conscious situation,' which he says 'seems resolvable into things related somehow to one another.' Conspicuous among these relations are the spatial and temporal connections. But independently of the space and time relation one thing may *suggest* or *mean* another. "This relation of meaning is just as much *a relation between* them as is space or time."

But just what is this relation of meaning? As Professor Woodbridge observes, the distinction of this relation from others 'must be more than a matter of names.' The author confesses that the paper has not much to answer in a positive way. Its aim is to define the problem. However, there are two or three definite negative statements. (1) It is not to be identified with the so-called quality of awareness. On the contrary, this quality of awareness turns out to be the manifold connections and irresistible meanings which the things in the conscious relation have. (2) On account of its intermittent character it is not a relation from which a system or order of relations could be deduced.

The main questions which, I imagine, most readers will raise are: (1) How can consciousness be a peculiar relation coordinate with and

differing radically from the others and yet all be 'within the conscious situation' itself? Perhaps this means simply that every situation is one in which the conscious relation—the relation of meaning—is present somewhere in it; not that the other relations are all inside consciousness, nor that the whole situation is conscious through and through. (2) Some may have difficulty in regarding meaning as an independent relation coordinate with the others. They may insist that one thing can not *just* and merely mean another, but that it always means it in a spatial or temporal or causal way; *e. g.*, a medicine means relief only *through* certain relations of space, time, cause, etc. Thus some may say, space, time, cause, etc., are but the specific modes of the meaning's relation.

Meanwhile the main point of Professor Woodbridge's paper—the conception of consciousness as an actual relating (and, I would add, to that extent a *constructive*) activity—is most promising to any one seeking escape from the toils of absolutism.

Dr. Norton's contribution treats of 'The Intellectual Element in Music.' To the reviewer the point of most general and vital significance is the writer's view of the relation between the logical and the appreciative phases of experience. He evidently does not regard experience as consisting of two worlds, one of logical relations—a world of description—the other a world of appreciation, each in turn serving as an 'appearance' of the other. 'The function of musical ideas is to control musical experience,' and by control of musical experience is meant the further development and enrichment of the immediate, appreciative experience. Hence how futile is the inquiry whether musical experience is purely immediate. Like all other experience, the dominantly appreciative stages develop differentiations in various ways, lose their solid and uniting character and call for analysis, for logical, scientific activity such as the construction of a scale, rhythm, tempo, etc., as means of restoring themselves at will. Of course this discovery of such means of restoring the appreciative experience means that the restored experience will not be the old one. It will be an appreciative experience developed and enriched through the logical and scientific activity which has restored it. The logical and the appreciative are thus mutual stimuli and limits.

The reviewer's lack of technical knowledge forbids discussion of many specific points which are doubtless very suggestive to more technically trained readers.

In an interesting paper on 'Pragmatism and Kantianism' Professor Raub makes a contribution to a much needed line of philosophical work, namely, an exhibition of the historical connections of pragmatism. However, I am sure many pragmatists will file an objection to the statement that the expounders of pragmatism 'treat it as an essentially new position.' A favorite thesis of pragmatists is that whenever the great classic contributors have sought to escape certain contradictions, irrelevancies of the formulation of insoluble problems, they have invariably been forced into pragmatic positions. That there was no clear consciousness of this would, I suppose, be generally admitted, and is moreover abundantly witnessed in the fact that up to the present the major part of philosophic

activity growing out of these classics has been given to the development of the absolutism instead of the pragmatism in them.

Whether the rediscovery of this immanent pragmatism and the conscious undertaking of the development of its various implications is sufficient to constitute 'a new era in philosophic thought' is an *ad hominem* question which is not likely to be seriously debated, although the difference between a movement which develops absolutism and one which consciously travels in the direction of pragmatism is after all a rather wide one.

The parallelism which the paper exhibits between what the writer regards as the important features of pragmatism and the main outlines of Kant's first 'Kritik' is suggestive. The author admits that the parallelism breaks at a very crucial point—on the question of the absolute finality and fixity of the categories. The paper does not consider the second 'Kritik' in its relation to the first, which must contain a very rich vein of pragmatism.

One or two points of interpretation should be noticed. If one says with the paper that pragmatism, along with Kant, makes the test of truth 'intellectual harmony,' it must be remembered that for the pragmatist intellectual problems, and, therefore, the intellectual harmony, is not a special field of isolated and independent operations. The pragmatist regards the intellectual process rather as a stage in the development and dissolution of tensions, the material, source and goal of which can not be described as merely 'intellectual.'

The paper concludes with the popular verdict on the adequacy of pragmatism based upon the equally popular imputation of an atomistic conception of the individual. How—asks the paper—can pragmatism account for the interaction and correspondence between the universes of different individuals? First, in general it might be said, that this does *not* need accounting for. It is that in terms of which everything else is accounted for. A world of individuals in interaction and correspondence is first the world inside of which all problems fall. Of course, if pragmatism in the course of working out solutions of these problems should, in its psychology or logic, conceive the individual in such a way as to make a world of interaction impossible, it must be held to account. But so far as I know, pragmatists hold that the content of each individual's universe, as such, is just the activity of interaction and correspondence with other individuals. Hence there is no general 'problem' of interaction and correspondence, however many specific 'difficulties' and subordinate problems in this process there may be.

The last and one of the best of the philosophical series of papers is by Professor Lyman, on 'The Influence of Pragmatism on the Status of Theology.' If this is a sample of what may be expected from the application of the pragmatic method to theology, both theology and pragmatism are to be congratulated.

The paper begins with the isolation of theology from the other sciences, due to the fact that when the other sciences became empirical theology remained frankly dogmatic in method. It continued to assume that it

possessed an infallible canon of truth. Historically there were two reasons for this. First, theology in its practical applications dealt with very important immediate problems that demanded a definite norm. Its error was in mistaking this definiteness for absolute finality. Second, theology claimed to deal with the supernatural. Here the dogmatic method was absolutely indispensable.

But the so-called empirical method of the natural sciences fared little better. For it, too, began to regard the elements into which it analyzed experience for practical purposes as metaphysical ultimates as absolute and final as the deliverances of theological dogmatism. The opposition of natural science and theology was thus due to two forms of absolutism whose content by definition excluded each other.

In the method of pragmatic empiricism which does away with static absolutism in every field, Professor Lyman finds the dissolution of the old oppositon, at any rate, whatever new ones may arise, and the promise of a theology possessing the same general canons as other sciences. Theology is already well prepared, on its side, for this reconstruction by its translation in recent years of the supernatural into the ethical and by its increasing use of the historical method in interpreting its content.

Applied to the special problems of Christian theology the pragmatic method would say that its 'absoluteness' and 'finality' must be wholly relative to the historical situations in which it functions. It is, of course, conceivable that Christianity may be pointing a direction for religious development which all other religions may eventually take. But, first, this can not be deduced as a metaphysical necessity; and second, even if this should occur we must remember 'that in a world of growing reality new values may arise, and that these may modify the old values or be quite discontinuous with them.'

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Studies in Psychology

The tribute which this dignified volume offers is not alone to Professor Garman the man, it is also to an academic and educational ideal which has in recent years suffered some obscuration in this country, but which promises speedily to come to its own once more. Original investigation and research, often of a very shallow and specious kind, has been the touchstone by which alone professional work has of late too often been tested. Professor Garman has deliberately chosen to follow an older and less spectacular ideal. He has resolutely set before himself the true teacher's office—the inspiration and guidance of those committed to his charge. To this task he has dedicated his every energy, and his research has been amidst the mysteries of human nature as the sympathetic and scholarly teacher meets this in his students. That his labors have been richly rewarded is well demonstrated by the striking group of men who contribute to this volume, and whom in a fair sense he may be said to have discovered.

Nor must one in such an estimate remain oblivious to the important influence of Professor Garman over the lives of hundreds of other Amherst men whose careers have taken them out of the professional path of philosophic study. The present volume will serve as a permanent and worthy memorial of this service, upon which the outside world may be permitted to congratulate all concerned.

As Professor Garman's own psychological interests have been commonly understood to incline toward the problems of general psychology, it is a rather striking fact indicative of the proclivities of the younger generation that of the five psychological papers in this volume four are of an experimental character and the fifth deals with the subconscious.

The first paper is by Professor Delabarre and discusses in the light of a long series of experiments the 'Influence of Surrounding Objects on the Apparent Direction of a Line.' In general the mode of procedure was to note the effect upon the seeming direction of lines lying in the horizontal and vertical planes when they were surrounded in various ways by other objects in the field of view, *e. g.*, points of light. In physiological terms such other objects constitute stimuli to movements of fixation. In psychological terms they furnish 'bids to attention.'

Professor Delabarre's paper is rather long and not easy to summarize briefly without omitting certain points. In general, however, his conclusions may be stated as follows: "The more a given line is surrounded by a field in which numerous varied objects or features of texture and illumination are distinguishable, the steadier is the eye in regarding it and the more uniform and reliable the estimates made of its direction" (p. 265). "Visible objects tend to cause the eye to turn toward them. If the eye does not actually turn, nevertheless a corresponding tension is introduced, balanced by an opposing tension which prevents movement." . . . "Variations in the line's apparent direction are due to the presence of particular muscular tensions" (p. 286). . . . "I am convinced that muscular tensions furnish all the material that is worked up into the spatial details of our perceptions. But we never formally detect them as muscular tensions" (p. 287).

From these quotations it will be seen that the positive upshot of Professor Delabarre's experiments is a confirmation of those theories of visual space perception which accord a fundamental significance to muscular factors. Like other recent formulators of this view,[1] he conceives the motor effect as exercised, so to speak, *upon* consciousness rather than *in* it.

The experiments contain many variants upon modes of fixation and orientation, distribution of the secondary objects in the field of view, as well as distinctions in the manner of directing attention, *e. g.*, voluntarily and involuntarily. As the author remarks, however, the complexities of the situation have by no means been as yet completely fathomed.

The paper contains a large amount of interesting and valuable material, but its scientific worth is considerably diminished by the failure to bring it into connection with the rich extant literature dealing with

[1] Cf. Carr, 'A Visual Illusion of Motion,' *Psychological Review Monograph*, 1906.

cognate problems. A fuller account of the details of the procedure would also have been welcome.

Professor Swift contributes a suggestive paper on 'Beginning a Language.' He is himself the subject of an experiment in learning Russian, the psychology of the learning process being the point at issue. Working steadily, but without conscious strain or haste, he studied daily for thirty minutes, and then in the ensuing fifteen minutes tested the number of words he could read from exercises in a beginner's text-book. The experiment extended over two and a half months. The employment of the number of words read affords an opportunity to reduce to the form of a curve the progress made from day to day.

Like all experimental studies of learning, so far as the reviewer is aware, the results indicate that the acquirement of any new proficiency of a complex kind proceeds in a spasmodic and irregular manner, periods of rapid advance alternating with periods of retardation and even retrogression, without uniformity and without assignable reason. The author regards his results as confirming previous observations of his own in disproof of the Bryan and Harter distinction between 'lower' and 'higher' order habits as succeeding one another chronologically in the learning process. Professor Swift finds evidences of the presence of both forms from the outset. They may differ in prominence from time to time, but both were present up to the end of this test.

Most of the time during the progress of learning of any kind is spent upon plateaus, a fact which under ordinary class-room conditions must inevitably discourage both teacher and pupil, for it fails totally to suggest the advance that subterraneously is going on. These, however, are the periods of solid achievement, the times when knowledge and dexterity are solidifying into permanent possessions. Examinations taken under such conditions are likely to convey a wholly erroneous impression to the teacher who does not appreciate the situation.

Taken by itself Professor Swift's study is perhaps rather slender to support the weight of the generalizations which he rests upon it. Moreover, the technique of the procedure seems to the reviewer to be characterized by more limitations than Professor Swift is disposed to recognize. But the work is extremely suggestive, and it is to be hoped that others will submit themselves to similar tests. The conditions are sufficiently representative of ordinary school work to give the results a valuable practical significance quite apart from their psychological merit.

Professor Pierce has an admirably written and well-matured paper upon the prevailing doctrine of a detached subconsciousness, against which he vigorously appeals. One's views in the matter at stake are in the last analysis possibly determined more by temperamental bias than by cold logic. But the author does all that he can to envisage his problem dispassionately and with due regard to demonstrable fact. It requires no small courage to confound the advocates of the 'split-off consciousness,' for they are many in number and count among themselves those who sit in very high places. This is not the first occasion, however on which Professor Pierce has broken a lance with them.

The author first discriminates several divergent meanings of the term subconscious, selecting as the target for his own fire the 'split-off consciousness' concept referred to above. He then postulates these canons of procedure to hold in the subsequent examination and discussion. (1) "Inference and observed fact must be relentlessly discriminated" (p. 326). (2) "Of two or more possible explanations for a given fact or set of facts the simplest is always to be chosen." (3) "If aid in explanation is to be sought through analogy, it is analogy with the simple, normal, well-established, or already accepted that is always to be given preference over that with the complex and exceptional."

Adhering to these familiar but often flouted principles of scientific investigation, he submits to critical dissection one after another of the phenomena commonly adduced in demonstration of the detached subconscious, *e. g.,* the anesthesias, amnesias and aboulias of hysterics, the sudden creations of genius, the facts of automatic writing and crystal gazing, alternating personality, etc. As a result of his exploration he concludes that the most elevated status to which the split-off subconscious could possibly aspire in the face of the facts would be that of a working hypothesis. But in this station it already has a perfectly worthy and satisfactory predecessor, *i. e.,* the theory of cerebral or neural bases for mental activities. It is not possible to do justice to the force of Professor Pierce's penetrating analysis in the space at command, but a few sentences may be quoted to indicate the general lines which he follows.

"The reason why the doctrine of subconsciousness has made such an effective appeal . . . is, I suppose, because it furnishes a way of discoursing about certain unusual phenomena so as to make them descriptively continuous with usual phenomena of the same or similar type." "These illustrations may be taken as typical of the kind of continuity which, it seems to me, has been too diligently courted. It is a *descriptive continuity* chiefly,—a continuity whose principal merit lies in its perpetuating, by easy use of analogy, the habitual and thus most comfortable way of envisaging the phenomena involved. Over against this variety of continuity we have endeavored to place what may be called *explanatory continuity,* the unremitting aim of which is to refrain from introducing new types of explanation in any series of similar phenomena. . . ." "Thus we have endeavored to range automatic writings under the head of mechanically producible movements, and to view the inspirations of genius as identical in type with all processes that arrive in consciousness without direct external excitation. The attempt to maintain a descriptive continuity . . . has led to a fashion of speaking about the subconscious as if it were a completely demonstrated fact. And from speaking of it in this way, its advocates have come to regard it as unquestionably existent." "And the problem confronting him who strives for explanatory continuity is whether he shall assume a subconsciousness to account for various mental oddities . . . or shall try to understand these latter by appealing to the same assumptions of cerebral disorder or cerebral peculiarity which have proved satisfactory enough in such cases as aphasic utterances and maniacal ravings." "It is with

the entire conviction that the dictates of a logically demanded explanatory continuity require the consistent and thoroughgoing extension of the psychophysical point of view that the arguments of this paper are submitted . . ." (pp. 347–349).

The two final papers in the volume deal with substantially the same subject. Professor Woodworth writes on the 'Cause of a Voluntary Movement.' Professor Burnett on 'An Experimental Test of the Classical Theory of Volition.' The latter paper is very brief and destitute of correlation with other experimental work directed in the same channel.

Professor Woodworth's paper is extremely interesting and suggestive and negatively at least possessed, I think, of great value. Its positive conclusion, however, embodies a fallacy which I regard as peculiarly seditious and subversive of sound psychological thinking. I therefore raise against it the protesting hand of injured orthodoxy.

The author puts his question in this way: "What is the really effective factor in the consciousness immediately preceding a movement, that gives it its motor power?" (p. 351). He experimented upon thirteen persons, having them execute various movements and attempt introspectively to report their mental experiences in the moment just preceding action. Despite many reports of imagery, kinesthetic, visual, auditory, etc., and despite many cases in which sensations were present, a large number of instances are reported in which neither sort of element could be detected, and Professor Woodworth evidently thinks that in many cases where these factors were found they were supernumeraries and not indispensable causative elements. He concludes, therefore, that neither images nor sensations are indispensable antecedents of volitionally controlled movements. He thinks we must conclude to the operation of naked thoughts. "The thought may be clothed in sensorial images, . . . but they are after all only clothes, and a naked thought can perfectly well perform its function of starting the motor machinery in action and determining the point and object of its application" (p. 392).

The reviewer takes issue with this conclusion on three scores. (1) The procedure adopted is incompetent to the securing of the conclusions reached. (2) The results reported do not prove what is alleged of them. (3) The 'naked thought' concept is a logical abstraction finding no real psychological basis in a careful examination of consciousness.[2]

To do justice to either Professor Woodworth or myself on these points of difference would require more space than can properly be taken, but briefly my criticisms come to this: As regards the first point, I object that [as I understand the report] all the movements examined were too well mastered, too habitual, to throw fairly into the foreground the sensory-ideational elements emphasized in gaining control of them. Bair's study,[3] quoted by Professor Woodworth, shows clearly how helpless we are in getting control of a really new coordination until sensory material comes in to help us out. Indeed, the author's account of his own experi-

[2] On a heresy germane to this, *i. e.*, 'imageless thought,' see a discussion between Professor Stout and the writer in the *Philosophical Review*, 1897, 1898.

[3] *Psychological Review*, 1901.

ments upon control of the toe movements brings out the same fact, of which, however, he seems to be oblivious.[4] In such experiments as we are here dealing with the mere command, heard or seen, is a quite sufficient cue to produce the movement, for what Professor James calls the 'remote ideas' have had ample opportunity to become associated with their appropriate consequences, and a command constitutes one of the various forms the remote idea may take.

Under point two, I should say that the occasional inability to detect sensuous forerunners of the act did not indicate the existence of naked thoughts, but simply the condition suggested in the paragraph above, *i. e.*, a causal (in the author's sense) connection between verbal thoughts given as commands (auditory or visual) and specific movements.

Under the third point I urge that the doctrine of the 'naked thought,' the 'imageless thought,' is based on a radically erroneous identification of the meaning, or cognitively dynamic, aspect of all thoughts with a distinct psychic entity. The attempt to summon Professor James's relational activities to the support of this pale entity, as well as the effort to find comfort for it in the activities of the associative centers, are alike calculated simply further to confound confusion.

On the negative side there are many points of interest in the experiments and a number of issues are raised which will well repay investigation. The whole course of the investigation indicates that the 'classical theory,' if sound, needs further exegesis. The author and the reviewer, for example, evidently interpret it differently. The relatively small representation of kinesthetic elements is significant, and the considerable number of these which are certainly peripheral and not central in origin bears upon the recent discussions of kinesthetic imagery, to which, however, the author does not refer. He comments, too, upon the disparity which often obtains between the preliminary image of a movement and the movement itself when this occurs. This disparity attaches to the rate of the movement, its precision and other qualitative characteristics. But all these observations, however intrinsically interesting, lose most of their crucial significance and become irrelevant for the present issue because of the relatively habitual nature of the movements studied, which require for their execution only the slightest and most transitory of 'remote' cues. I have no doubt, therefore, that Professor Woodworth is correct in regarding most of these reported images as unessential hangers-on.

Professor Burnett's experiments were made only on himself, and hence have a more limited bearing than those just under discussion. He found that when he voluntarily attempted to secure images of various movements, the rates at which the movements were executed was considerably in excess of the rates at which they were imaged. The movements were of the rhythmic kind represented by tapping. He employed chiefly kinesthetic and visual images, but a few tests seem to have involved auditory images also.

[4] 'Attention was directed to the toe itself, to the sensations arising in it . . .' (p. 367).

Like Professor Woodworth's work, this experiment is intrinsically interesting as a study in the disparities between our motor capacities and our abilities to frame definite images of the movements involved in these capacities. But also like that study, the procedure appears to the reviewer incompetent to the task of supporting the conclusions erected upon it. No test based upon *habitual* movements can hope to reveal the inner mechanism of movements in the early stages of voluntariness when control is being acquired. And it is only here that unequivocal and relatively easy introspection is possible. So far as I know, no defender of the 'classical theory' has ever contended that a premonitory image definitely precedes each step in a series of well-established coordinations like tapping. It is the whole act—consisting of an indefinite number of taps—for which we give the cue, and in such a case again the cue may be a command or some utterly fleeting image. But in some form or other adequate introspection will, in the reviewer's judgment, always reveal some anticipatory conscious process in which sensuously colored material is present. To say that 'any mental state whatever may be the antecedent of an intentional act' is in no way to circumvent this assertion, because there is no mental state whatever wholly destitute of all sensuous content.

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JOURNALS AND NEW BOOKS

ANNALEN DER NATURPHILOSOPHIE. July, 1906, Band 5, Heft 3. *Bausteine zu einer neuen chemischen Theorie* (pp. 271–291): F. WALD. – An attempt to state the problems of chemistry so as to make them susceptible to mathematical treatment. *Gegensinn und Gegenlaut* (pp. 292–302): C. ABEL. – Numerous illustrations of the principle that from a given root there tend to develop meanings precisely opposite to each other. *Persönliche Energie* (pp. 303–320): J. WALDAPFEL. – On the one hand, the factors of morality, versatility and adaptability are reducible to versatility, which is a magnitude (*Grösse*). On the other, strength of character, interest and bodily power are reducible to interest, which is a power (*Stärke*). That is, all kinds of personal energy, like all other energy, can be distinguished as capacity and as intensity factors. *Ueber die Anwendung psychopathologischer Erkenntnisse auf gesellschaftliche und geschichtliche Erscheinungen* (pp. 321–348): W. HELLPACH. – The abnormal mind is a subject of the social sciences in two ways: as example of a type, the laws of whose social influence social science must discover; or as an historical personality. The abnormality, in either case, may or may not be significant: it was in Goethe and Hichte; it was not in Kant. A greater store of facts is now needed, not a logical discussion, to prove the existence of a psychopathological branch of sociology. *Das Beurtheilen perspektivischer Abbildungen in Hinsicht auf den Standpunkt des Beschauers* (pp. 349–377): A. v. OETTINGEN. –

Perspective constructions may be made independent of all or any of the supposedly fundamental elements. The changing position of the beholder complicates the artist's task; but this rule holds, that the apparent depth of any point of the horizon is proportional to the distance of the eye. A revised nomenclature and system of definitions follows. *Ueber die Grundsätze und Hauptbegriffe der Mechanik* (pp. 378–394): VL. V. TÜRIN. – Five important theses are advanced, which support the concepts of energetics to the rejection of those of mass and of action and reaction, and to the limitation of the formula of the parallelogram of forces. *Neue Bucher:* W. O.: H. Dinger, *Dramaturgie als Wissenschaft.* P. A. Möbius, *Ausgewahlte Werke, Band VI, Im Grenzlande.* H. Driesch, *Natur u. Kulturphilosophische Bibliothek* III. W. Jerusalem, *Der kritische Idealismus u. die reine Logik.* W. Meyer-Rinteln, *Die Schöpfung der Sprache.* G. W. Leibnitz (übersetzt von A. Buchenan), *Philosophische Werke.*

Binet, Alfred. *Les révélations de l'écriture d'après un contrôle scientifique.* Paris: Felix Alcan. 1906.

Congress of Arts and Science, Universal Exposition, St. Louis, 1904. Edited by Howard J. Rogers, A.M., LL.D., Director of Congresses. Vol. VI. *Medicine, Technology.* Boston and New York: Houghton, Mifflin & Co. 1906. Pp. ix + 740. $2.50 *net.*

Eucken, Rudolf. *Beiträge zur Einführung in die Geschichte der Philosophie.* Leipzig: Verlag der Dürr'schen Buchhandlung. 1906. Pp. iv + 195. 3.60 M.

Fullerton, George Stuart. *An Introduction to Philosophy.* New York and London: The Macmillan Co. 1906. Pp. xiii + 322.

Lang, Sidney Edward. *A Primer of General Method.* An introduction to educational theory and practise on the basis of logic. Toronto: The Copp, Clark Co. 1906. Pp. x + 224.

Whittaker, Thomas. *Apollonius of Tyana, and other Essays.* London: Swan Sonnenschein & Co. 1906. Pp. 211. 3s. 6d. *net.*

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